

Kilerich, A.: *On the Hydrography of the Greenland Sea*, Meddelsér Grönland, Bind 144, Nr. 2, Appendix 2, 1945.

Maloney, William E. and Burns, Robert E.: *A Reappraisal of the Tides of the Mediterranean*, H.O. TR-61, Washington: U. S. Navy Hydrographic Office, 32 p., 1958.

Marmer, H.A.: *On Cotidal Maps*, Geographical Review, Vol. 13, No. 1, pp. 129-142, 1928.

Neumann, Gerhard: *Notes on the Wind-Driven Ocean Circulation*. New York: New York University, Department of Meteorology and Oceanography, 1954.

Nichols, David A.: *Arctic Tides and Currents*, Beaver, No. 4, p. 18-22, 1940.

U. S. Coast and Geodetic Survey: *Tidal Current Tables of the Atlantic Coast of North America*, Washington, 1958.

U. S. Coast and Geodetic Survey: *Tidal Harmonic Constants, Atlantic Ocean (Including Arctic and Antarctic Regions)*, TH-1, Unpublished, 1942.

U. S. Coast and Geodetic Survey: *Tide Tables, High and Low Water Predictions, 1972. East Coast of North and South America (Including Greenland)*, Washington, 1971.

U. S. Coast and Geodetic Survey: *Tide Tables, High and Low Water Predictions, 1972: Europe and West Coast of Africa (Including Mediterranean Sea)*, Washington, 1971.

U. S. Naval Oceanographic Office and Weather Bureau: *Surface Current Data for Marsden Squares 001-008, 036-046, 073-082, 109-117, 141-152, 176-190, 214-228, 248-252, and 284-288*, Tabulated by the U. S. Naval Oceanographic Office from H1-9 Current Report Form Deck, and from summary cards furnished by the U. S. Weather Bureau from Deck 193 (Netherlands, Meteorologisch Instituut), Unpublished.

Van Keen, Joh: *Water Movements in the Straits of Dover*, Journal du Conseil, Vol. 13, No. 1, p. 7-36, 1938.

Villain, Charles: *Cartes des Lignes Cotidales dans les Océans*, Annales Hydrographiques, 4e Serie, Tome 3, pp. 269-388, 1953.

Warburg, H. C., (Compiler): *Tidal Streams of the Waters Surrounding the British Islands and off the West and North Coasts of Europe, Gibraltar to Yugorski Strait*, 2nd ed., p. 41, 1945, London, 1946.

ICE

SEA ICE

The ice limits shown on the charts enclose regions with mean ice concentrations of 1/8 or greater. These reflect the average midmonth conditions as determined from all available observations. Actual concentration boundaries may vary widely from the averages under the influence of changing synoptic meteorological and oceanographic situations.

Ice conditions in the westernmost third of the North Atlantic (Canada-West Greenland region) are based primarily on observations collected by U. S. Navy and Canadian ice reconnaissance teams during the years 1952 through 1972. The analysis of the central North Atlantic (East Greenland-Iceland region) was derived from data supplied by U. S. Navy reconnaissance teams and by annual reports of the Danish Meteorological Institute for the period 1919-62. In the easternmost third of the North Atlantic, observations taken at coastal stations and aboard German, Soviet, and Scandinavian ships serve as the main data sources. The Baltic data were extracted from detailed ice reports of the German Hydrographic Institute and the Finnish Institute of Marine Research. Satellite photographs were used to fill gaps in the data.

GLACIER ICE

The mean maximum iceberg limit encompasses most of the observations of drifting glacier ice reported through 1972. Because of the difficulty in differentiating between small amounts of sea ice and glacier ice, all ice sightings made beyond this boundary, regardless of origin, were judged to be exceptional in nature and plotted individually.

BIBLIOGRAPHY - ICE

Black, W. A.: *Gulf of St. Lawrence Ice Survey, Winter 1956-1962*. Geographical Paper Nos. 12, 14, 19, 23, 32, and 36. Ottawa: Department of Mines and Tactical Surveys, Geographical Branch, Various pagings, 1957-1963.

Canada, Department of Marine Survey: *Navigation Conditions in Hudson Bay and Strait During Season of Navigation* In: Annual Reports (1929-1934), Ottawa, Various pagings, 1930-1935.

Canada, Department of Marine Survey: *Navigation Conditions on the Hudson Bay Route from the Atlantic Seaboard to the Port of Churchill, Season of Navigation* In: Annual Reports (1935-1959), Ottawa, Various pagings, 1930-1960.

Canada, Department of Transport, Meteorological Branch: *Aerial Ice Reconnaissance and Ice Advisory Services: St. Lawrence River, the Gulf of St. Lawrence, the Strait of Belle Isle and East Coast of Newfoundland*, Toronto, Various pagings and years.

Canada, Department of Transport, Meteorological Branch: *Charts of Ice Reconnaissance 1960-1972* In: Washington, U. S. Naval Oceanographic Office, unpublished.

Canada, Department of Transport, Meteorological Branch: *Ice Summary and Analysis 1964-1970: Eastern Canadian Seaboard*, Toronto, Various pagings, 1965-1972.

Canada, Department of Transport, Meteorological Branch: *Ice Summary and Analysis 1964-1970: Hudson Bay and Approaches*, Toronto, Various pagings, 1966-1972.

Chikachev, M. P. : *Considérations Historiques sur les Phénomènes de Congélation Constatés dans le Bassin de la Mer Noire* (Historical consideration of the Phenomena of freezeup of the basin of the Black Sea), Annuaire de la Societe Meteorologique de France, Vol. 3, p. 12-37, 1855.

Denmark, Det Danske Meteorologiske Institut: *Isforholdene I De Arktiske Have* (The state of the ice in the Arctic Seas), Copenhagen: Nautisk-Meteorologisk Aarbog, various pagings, 1910-1957.

Denmark, Det Danske Meteorologiske Institut: *Isforholdene I De Gronlandske Faruande, 1957-1964*, Charlottenlund, various pagings, 1964, 1965, 1967, 1968, 1970, and 1971.

Denmark, Det Danske Meteorologiske Institut: *The State of the Ice in Danish Waters During the Winters 1906-1931*, Copenhagen: Nautisk-Meteorologisk Aarbog, various pagings, 1906-1931.

Finland, Merentutkimuslaitos: *Jäätiluet 1914-1970 Suomen Merialueilla* (Ice Winters 1914-1970 along the Finnish Coast), various numbers, Helsinki: various pagings, 1924-1971.